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IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application. An identifier indicating the status of each claim is provided.

Listing of Claims

1-22. (Canceled)

23. (Currently Amended) ~~The special effect device according to claim 22~~ A special effect device in which picture signals are read out from a frame buffer based on an address signal to impart a desired special effect to the picture signals read out from said frame buffer, said special effect device comprising:

address signal generating means for generating a readout address signal of said picture signals stored in said frame buffer so that the picture signals will be output to each of a plurality of corresponding triangular areas of a preset size fractionated from said picture signals stored in said frame buffer,

wherein said address signal generating means generates the readout address signal of said picture signals stored in said frame buffer so that the totality of picture signals output in each triangular area will be preset picture signals of the same sort from one of the triangular areas to another; and

wherein, with the bottom side and the height of a triangle fractionated from said picture signals being Wy and Wx, respectively, said address signal generating means generates a readout address signal (X0, Y0) for reading out picture signals in an area of said triangle in case

the center of said picture signals is at the point of origin of a rectangular coordinate system by the equation (4-2):

$$X0 = f_1(x0)$$

$$Y0 = f_2(y0 + f_3(x0) \times f_4(y0) \qquad (4\text{-}2)$$

which satisfies the equations (4-3), (4-4), (4-5) and (4-6):

$$f_1(x0) = \left(\left[\frac{x0}{w_x} \right] + 0.5 \right) \times w_x \qquad (4\text{-}3)$$

$$f_2(y) = \left[\frac{y + 0.25 \times w_y}{0.5 \times w_y} \right] + 0.5 \times w_y \qquad (4\text{-}4)$$

$$f_3(x0) = \begin{cases} \dfrac{x0(\mathrm{mod}\, w_x)}{w_x} - 0.5 & (x(\mathrm{mod}\, 2w_x) \leqq w_x) \\ 0.5 - \dfrac{x0(\mathrm{mod}\, w_x)}{w_x} - 0.5 & (x(\mathrm{mod}\, 2w_x) > w_x) \end{cases} \qquad (4\text{-}5)$$

$$f_4(y0) = \begin{cases} w_y & (y0(\mathrm{mod}\, w_y) \leq 0.5 \times w_y) \\ -w_y & (y0(\mathrm{mod}\, w_y) > 0.5 \times w_y) \end{cases} \qquad (4\text{-}6)$$

where

w_x = fixWidthX × picture width

w_y = fixWidthY × picture height

[ ] is the Gaussian symbol; and

~~and~~ wherein said address signal generating means generates, by the equation (4-7):

$$X = X0 + cx$$

$$Y = Y0 + cy \qquad (4\text{-}7)$$

said address signal generating means also generating a readout signal (X, Y) in case the position of the point of origin in the rectangular coordinate system of said picture signals is (cx, cy).

24. (Currently Amended) An address signal generating device for generating an address signal for reading out picture signals from a frame buffer, said address signal generating device comprising:

address signal generating means for generating a readout address signal of said picture signals stored in said frame buffer so that the picture signals will be output to each of a plurality of corresponding triangular areas of a preset size fractionated from said picture signals stored in said frame buffer,

~~wherein said address signal generating means converts a polar coordinate system of said picture signals to a rectangular coordinate system~~

wherein said address signal generating means generates the readout address signal of said picture signals stored in said frame buffer so that the totality of picture signals output in each triangular area will be preset picture signals of the same sort from one of the triangular areas to another; and

wherein, with the bottom side and the height of a triangle fractionated from said picture signals being Wy and Wx, respectively, said address signal generating means generates a

readout address signal (X0, Y0) for reading out picture signals in an area of said triangle in case the center of said picture signals is at the point of origin of a rectangular coordinate system by the equation (4-2):

$$X0 = f_1(x0)$$

$$Y0 = f_2(y0 + f_3(x0) \times f_4(y0) \qquad (4\text{-}2)$$

which satisfies the equations (4-3), (4-4), (4-5) and (4-6):

$$f_1(x0) = \left(\left[\frac{x0}{w_x} \right] + 0.5 \right) \times w_x \qquad (4\text{-}3)$$

$$f_2(y) = \left[\frac{y + 0.25 \times w_y}{0.5 \times w_y} \right] + 0.5 \times w_y \qquad (4\text{-}4)$$

$$f_3(x0) = \begin{cases} \dfrac{x0(\mathrm{mod}\, w_x)}{w_x} - 0.5 & (x(\mathrm{mod}\, 2w_x) \leqq w_x) \\ 0.5 - \dfrac{x0(\mathrm{mod}\, w_x)}{w_x} - 0.5 & (x(\mathrm{mod}\, 2w_x) > w_x) \end{cases} \qquad (4\text{-}5)$$

$$f_4(y0) = \begin{cases} w_y & (y0(\mathrm{mod}\, w_y) \leq 0.5 \times w_y) \\ -w_y & (y0(\mathrm{mod}\, w_y) > 0.5 \times w_y) \end{cases} \qquad (4\text{-}6)$$

where

w_x = fixWidthX × picture width

w_y = fixWidthY × picture height

[ ] is the Gaussian symbol; and

wherein said address signal generating means generates, by the equation (4-7):

$$X = X0 + cx$$

$$Y = Y0 + cy \qquad (4\text{-}7)$$

said address signal generating means also generating a readout signal (X, Y) in case the position of the point of origin in the rectangular coordinate system of said picture signals is (cx, cy).

25. (Canceled)

26. (Currently Amended) An address signal generating method for generating an address signal for reading out picture signals from a frame buffer, said address signal generating method comprising:

an address signal generating step of generating a readout address signal of said picture signals stored in said frame buffer so that the picture signals will be output from said frame buffer to each of a plurality of corresponding triangular areas of a preset size fractionated from said picture signals stored in said frame buffer,

~~wherein said address signal generating step converts a polar coordinate system of said picture signals to a rectangular coordinate system~~

wherein said address signal generating step generates the readout address signal of said picture signals stored in said frame buffer so that the totality of picture signals output in each triangular area will be preset picture signals of the same sort from one of the triangular areas to another; and

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wherein, with the bottom side and the height of a triangle fractionated from said picture signals being Wy and Wx, respectively, said address signal generating step generates a readout address signal (X0, Y0) for reading out picture signals in an area of said triangle in case the center of said picture signals is at the point of origin of a rectangular coordinate system by the equation (4-2):

$$X0 = f_1(x0)$$

$$Y0 = f_2(y0 + f_3(x0) \times f_4(y0) \qquad (4\text{-}2)$$

which satisfies the equations (4-3), (4-4), (4-5) and (4-6):

$$f_1(x0) = \left(\left[\frac{x0}{w_x} \right] + 0.5 \right) \times w_x \qquad (4\text{-}3)$$

$$f_2(y) = \left[\frac{y + 0.25 \times w_y}{0.5 \times w_y} \right] + 0.5 \times w_y \qquad (4\text{-}4)$$

$$f_3(x0) = \begin{cases} \dfrac{x0(\mathrm{mod}\, w_x)}{w_x} - 0.5 & (x(\mathrm{mod}\, 2w_x) \leqq w_x) \\ 0.5 - \dfrac{x0(\mathrm{mod}\, w_x)}{w_x} - 0.5 & (x(\mathrm{mod}\, 2w_x) > w_x) \end{cases} \qquad (4\text{-}5)$$

$$f_4(y0) = \begin{cases} w_y & (y0(\mathrm{mod}\, w_y) \leq 0.5 \times w_y) \\ -w_y & (y0(\mathrm{mod}\, w_y) > 0.5 \times w_y) \end{cases} \qquad (4\text{-}6)$$

where

w_x = fixWidthX × picture width

w_y = fixWidthY × picture height

[ ] is the Gaussian symbol; and

wherein said address signal generating step generates, by the equation (4-7):

$$X = X0 + cx$$

$$Y = Y0 + cy \qquad (4\text{-}7)$$

said address signal generating step also generating a readout signal (X, Y) in case the position of the point of origin in the rectangular coordinate system of said picture signals is (cx, cy).

27. (Canceled)

28. (Currently Amended) An address generating program for having a computer execute an address signal generating process of generating an address signal for reading out picture signals from a frame buffer, wherein said address generating program allows the computer to execute an address signal generating step of generating a readout address signal of said picture signals stored in said frame buffer so that the picture signals will be output to each of a plurality of corresponding triangular areas of a preset size fractionated from said picture signals stored in said frame buffer,

~~wherein said address signal generating step converts a polar coordinate system of said picture signals to a rectangular coordinate system~~

wherein the address signal generating step executed by said computer generates the readout address signal of said picture signals stored in said frame buffer so that the totality of picture signals output in each triangular area will be preset picture signals of the same sort from one of the triangular areas to another; and

wherein, with the bottom side and the height of a triangle fractionated from said picture signals being Wy and Wx, respectively, said address signal generating step generates a readout address signal (X0, Y0) for reading out picture signals in an area of said triangle in case the center of said picture signals is at the point of origin of a rectangular coordinate system by the equation (4-2):

$$X0 = f_1(x0)$$

$$Y0 = f_2(y0 + f_3(x0) \times f_4(y0) \qquad (4\text{-}2)$$

which satisfies the equations (4-3), (4-4), (4-5) and (4-6):

$$f_1(x0) = \left(\left[\frac{x0}{w_x} \right] + 0.5 \right) \times w_x \qquad (4\text{-}3)$$

$$f_2(y) = \left[\frac{y + 0.25 \times w_y}{0.5 \times w_y} \right] + 0.5 \times w_y \qquad (4\text{-}4)$$

$$f_3(x0)=\begin{cases}\dfrac{x0(\mathrm{mod}\,w_x)}{w_x}-0.5 & (x(\mathrm{mod}\,2w_x)\leqq w_x)\\ 0.5-\dfrac{x0(\mathrm{mod}\,w_x)}{w_x}-0.5 & (x(\mathrm{mod}\,2w_x)>w_x)\end{cases}$$

(4-5)

$$f_4(y0)=\begin{cases}w_y & (y0(\mathrm{mod}\,w_y)\leq 0.5\times w_y)\\ -w_y & (y0(\mathrm{mod}\,w_y)>0.5\times w_y)\end{cases}$$

(4-6)

where

w_x = fixWidthX × picture width

w_y = fixWidthY × picture height

[ ] is the Gaussian symbol; and

wherein said address signal generating step generates, by the equation (4-7):

$$X = X0 + cx$$

$$Y = Y0 + cy \qquad (4\text{-}7)$$

said address signal generating step also generating a readout signal (X, Y) in case the position of the point of origin in the rectangular coordinate system of said picture signals is (cx, cy).

29. (Canceled)